

REMARKS/ARGUMENTS

Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remain of the opinion that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the above amendments to the claims and the following remarks.

Since the present amendment raises no new issues for consideration and, in any event, places the present application in better condition for consideration on appeal, it is respectfully requested that this amendment be entered under 37 CFR 1.116 in response to the last Office Action dated October 29, 2008, which made final rejections as to the pending claims.

A. Status of the Claims

As a result of the present amendment, claims 1-9 are presented for continued prosecution.

Claim 1 has been amended to more distinctly recite the claimed combination, to make it clear that the separator comprises at least two distinct magnetic poles, each pole comprising ferrite magnets and earth magnets. No new matter has been added.

B. The Presently-Claimed Invention

The presently-claimed invention comprises a magnetic separator with permanent magnets. In one of the novel aspects of the claimed invention, the magnetic separator includes a ferromagnetic member for a circuit connection between at least two distinct magnetic poles. Each distinct magnetic pole includes a ferrite magnet in the bottom portion in contact with a ferromagnetic member for a circuit connection between the poles, and a rare earth magnet in the top portion to provide an entrance/exit surface of magnetic flux lines.

C. Claim Rejections under 35 U.S.C. § 102(e)

Claims 1 and 1/3 - 8 had been rejected as being anticipated by Gleckner (U.S. 6,850,140).

In order to maintain an anticipation rejection under 35 U.S.C. § 102, the prior art must disclose each and every element of the rejected claims with sufficient clarity to prove its existence in the prior art. Applicant respectfully submits that Gleckner does not anticipate the claimed invention for at least the following reasons.

1. Gleckner does not teach or suggest a magnetic separator

A. The preamble term, “magnetic separator” should be given patentable weight.

The presently-claimed invention is directed to a magnetic separator as recited in claim 1. Applicant uses the term “magnetic separator” to mean a device to attract and separate ferromagnetic materials of any shape and size from a mixed material (see lines 11-13 on page 1 of the application as filed).

The Examiner noted that Applicant used the term “magnetic separator” in the preamble of the claim and then dismissed this term as having any patentable weight to the claim. In response, Applicant stated that a term in a claim preamble should be given patentable weight when the term gives “life and meaning” to the claim, based on what the Applicants believed and stated their invention to be in the specification. Corning Glass Works v. Sumitomo Electric, 868 F.2d 1251, 9 USPQ 2d 1962 (Fed. Cir. 1989). In Corning, the court ruled that patentable weight should be given to the preamble term “an optical wave guide” because specification was clear that the invention was so directed to an optical wave guide, functioned as an optical wave guide, and dealt with the problems of optical wave guide systems. Similarly, here the term “magnetic separator” should be given patentable weight because the inventor in the specification makes it clear that the invention is directed to a magnetic separator, functions as a magnetic separator and discussed the problems of prior magnetic separators.

Once patentable weight is properly given to “magnetic separator”, it is clear that the Gleckner reference does not anticipate Claim 1 because Gleckner does not disclose a magnetic separator.

B. The Gleckner magnetic roll is non-analogous art to magnetic separators.

Further, the magnetic separator of the presently-claimed invention is in a completely different industrial field compared to the magnetic roll of Gleckner. The magnetic roll of Gleckner is intended for use in the reprographics industry to convey toner powder from a container onto a photoreceptor (see col. 1, lines 20-60 and col. 2, lines 16-18 of Gleckner). Respectfully, artisans working in the field of magnetic separation would not look to the art of image reproduction for teachings which may apply in the field of magnetic separation.

The needs and requirements of these two fields are quite opposite since the magnetic rolls of Gleckner exhibit greater magnetic field strength than ferrite magnets alone, and a substantially

more uniform magnetic field in the direction outward from and normal to the layer of ferrite magnet than the magnetic field exhibited by the rare earth magnet alone (see col. 2, lines 10-15, lines 24-28, lines 39-47; and col. 3, lines 6-24 of Gleckner). In contrast to Gleckner, the presently-claimed invention relates to magnetic separation where magnetic field uniformity is not important, and actually goes against the optimization of the gradient that is achieved by using a bipole magnet that increases the field disuniformity and also gradient and separation performance. In fact, a bipole is used in the magnetic separator of the present invention instead of a monopole as in Gleckner, in order to increase the gradient which is important during magnetic separation. A bipole magnet means a positive and negative Gauss reading value is obtained to increase gradient, which goes against the magnetic field uniformity strongly looked for in Gleckner (*"magnetic field uniformity remains of paramount concern"*, see col. 7, lines 7-8 of Gleckner). Gleckner, therefore, actually teaches away from the concept of the present invention.

In addition to the above, further proof of the differences between the industrial field of Gleckner and the present invention is in the list of possible uses of Gleckner's layered magnets at col. 6, lines 17-22. While Gleckner states that his magnets may be used to make magnetic rolls for the reprographics industry, advertising specialities (signs and labels), micromotor magnets, linear motors, actuators, medical MRI machines, biomedical, surgical drapes, car ski-rack restraint systems, and automotive sound deadening systems, no mention is made of magnetic separation.

Applicant respectfully submits that Gleckner does not provide any relevant teachings to the field of magnetic separators, and actually teaches away from the objections of the invention.

2. Gleckner does not teach or suggest a ferromagnetic member for a circuit connection between at least two distinct magnetic poles

Claim 1 recites that the magnetic separator includes a ferromagnetic member 2 for a circuit connection between at least two distinct magnetic poles 3C.

This aspect of the claimed invention is illustrated, for example, in Fig. 4 and described in lines 21-28 of the application as filed. As shown and described therein, each of at least two distinct poles 3C North-South have bottom portions made up of ferrite magnets 12. Each individual ferrite magnet 12 contacts ferromagnetic member 2. Ferromagnetic member 2 therefore establishes a circuit connection between the two poles 3C North-South.

The Examiner cited element 11 of Gleckner to teach the claimed ferromagnetic member. Element 11 of Gleckner, however, is not a ferromagnetic member for a circuit connection between two poles. Rather, element 11 is just an additional layer of layered magnets 12, 14, which may include ferritic or rare earth magnetic material (see col. 5, lines 26-35 of Gleckner). The additional layer 11 may be superposed on the ferritic magnet 12 as illustrated in Fig. 2 of Gleckner, or it may be located between the ferritic magnet 12 and the rare earth magnet 14 (see col. 5, lines 26-35 of Gleckner). Thus, in contrast to claim 1 and the embodiment illustrated in Fig. 4 of the present application, additional layer 11 of Gleckner does not contact two ferrite magnets for a circuit connection between two poles.

Gleckner does not teach or suggest a ferromagnetic member for a circuit connection between two poles as recited in claim 1. For this reason alone, Applicant therefore respectfully submits that Gleckner does not teach or suggest each and every element of the claimed invention as required to maintain an anticipation rejection under § 102.

3. Gleckner does not teach or suggest at least two distinct magnetic poles connected by a ferromagnetic member

Claim 1 recites that a circuit connection is made between at least two distinct magnetic poles connected by a ferromagnetic member.

As illustrated, for example, in Fig. 3 of the application, the magnetic separator includes at least two distinct magnetic poles 3C, wherein each magnetic pole 3C has a ferrite magnet 12 and a rare earth magnet 14. The ferrite magnets 12 of the magnetic poles 3C are connected by ferromagnetic member 2. A circuit connection is established between magnetic poles 3C as illustrated in Fig. 4 of the application.

Applicant attaches Figures 1-3 to help illustrate the difference between the claimed invention and Gleckner. The attached Figure 3 shows an arrangement according to the claimed invention wherein two distinct poles are provided, each pole comprising a bottom ferrite magnet and a top rare earth magnet. (The attached Figure 3 is similar to application Figure 3, but is in elevational view and shows the entire flux path with flux lines.) In the attached Figure 3 flux lines going upward from the top of the distinct left pole continue over in a region of space toward the top of the distinct right pole, then traveling down in the right pole, then through the ferromagnetic connector in the left direction, then upward in the left pole to complete the flux path.

In contrast, in the attached Figures 1 and 2, which depict Gleckner's structure, the flux lines travel through only one distinct magnetic pole (the pole comprising a top ferrite magnet and a bottom rare earth magnet. The flux lines travel through only one complete distinct pole, as the pole is defined in Applicant's Claim 1.

The Examiner cited ferrite magnet 12 and rare earth magnet 14 of Gleckner to teach the claimed at least two magnetic poles. However, Applicant respectfully points out that ferrite magnet 12 and rare earth magnet 14 of Gleckner are not two distinct individual magnetic poles, but are two superposed layers of a single magnetic pole. The layered single magnetic pole of Gleckner is repeatedly described and illustrated (see, for example, col. 4, lines 23-28, col. 5, lines 9-11; col. 6, lines 25-29; and Figs. 4-5).

Gleckner does not teach or suggest at least two magnetic poles connected by a ferromagnetic member. For this reason alone, Applicant respectfully submits that claim 1 is not anticipated by Gleckner.

4. Gleckner does not teach or suggest ferrite magnets in the bottom portion in contact with a ferromagnetic member, and rare earth magnets in the top portion for an entrance/exit surface of magnetic flux lines

Claim 1 recites that each of at least two magnetic poles is made up of ferrite magnets 12 in the bottom portion and rare earth magnets 13 in the top portion.

This aspect of the claimed invention can be seen in application Figs. 3-4. As illustrated therein, ferrite magnets 12 are in the bottom portion which contacts ferromagnetic member 2, and rare earth magnets 13 are in the top portion for an entrance/exit of magnetic flux.

In an opposite manner to claim 1, Gleckner teaches ferritic magnets 12 in the top portion and rare earth magnets 14 in the bottom portion. This aspect of Gleckner is described in, for example, the abstract; col. 2, lines 8-10 and 19-21; col. 4, lines 23-28; and col. 6, lines 25-29. In particular, Figs. 5(a)-5(c) of Gleckner illustrate ferritic magnet 12 in the top portion and rare earth magnet 14 in the bottom portion. For this reason alone, Gleckner does not anticipate Claim

5. Conclusion of Non-Anticipation by Gleckner

For each of the alternate reasons given above, Applicant respectfully submits that Gleckner is not relevant to magnetic separators and does not teach or suggest each and every element of the claimed invention as required to maintain an anticipation rejection under § 102.

D. Fees

This Response is being filed within the two-month shortened statutory period for reply. No fee is believed to be due. If it is determined that fees are due or any overpayment has been made, the Assistant Commissioner is hereby authorized to debit or credit such sum to Deposit Account No. 02-2275. Pursuant to 37 C.F.R. 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. The fee associated therewith is to be charged to Deposit Account No. 02-2275.

E. Conclusion

In view of the amendments and arguments presented, it is respectfully submitted that each and every one of the matters raised by the Examiner has been addressed by the present amendment and that the present application is now in condition for allowance.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted

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